MEMBER ENGINEERING COLLEGE MAGAZINES ASSOCIATED

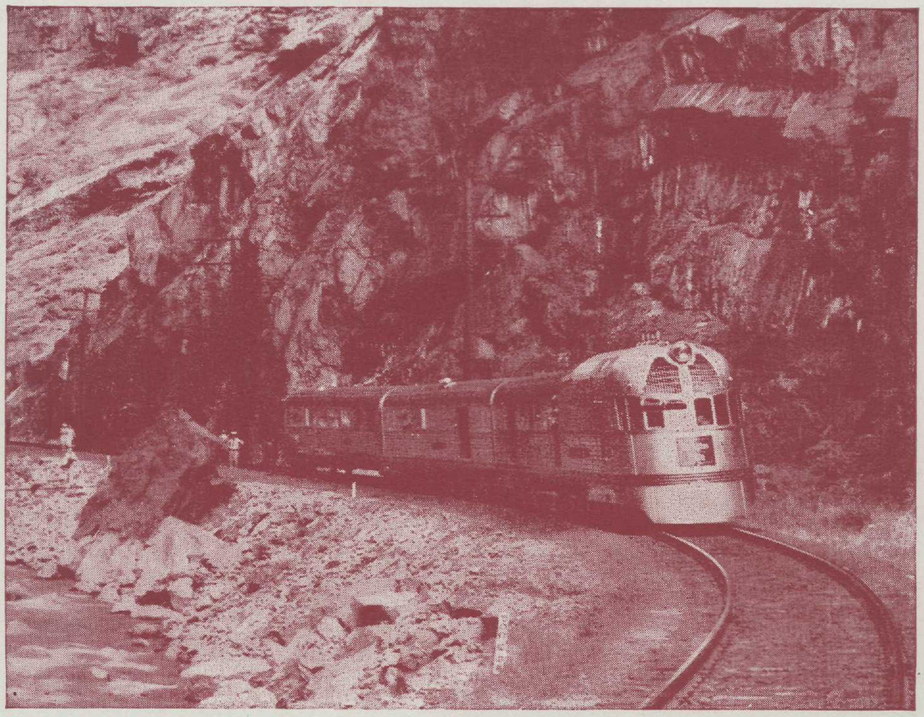
# THE OHIO STATE ENGINEER

DEAN'S MESSAGE . . . SENIOR INTERVIEWS . . . . . OHIO'S ENGINEERING FIRSTS . . . . . ENGINEER'S BOOKSHELF . . . . . . . ENGINEERS IN SPORTS DEPARTMENTAL INTERVIEWS . . . . . . FONTANA . . . . . .

7

• 1 9 3 7 •

ANNUAL NUMBER



**WELDING is responsible for a majority of the streamliners now racing about the country. Burlington's Zephyrs, the Boston & Maine's Flying Yankee—all made of stainless steel—and the Pennsylvania's new super-electric locomotives, all owe their form and much of their efficiency to welding. Welding makes possible tremendous savings in weight without sacrificing strength and rigidity.**

# Streamlining . . .

## Demands smooth, unbroken surface and strong, light frames—both attained by welding

"STREAMLINING" is more than a word to catch popular fancy and assure sales. This design trend, in automobiles, trains, ships and a vast variety of equipment items, has several extremely sound reasons for existence. Smooth mass-distribution and unbroken surfaces mean ease of operation and savings in power for moving objects. This smoothness of design also results in easier handling of portable objects, as well as cleanliness, simplicity and efficiency.

Streamlining involves the method of construction, the theory behind the design. Streamlined articles are unit-built of strong, light materials. The entire product is designed to be one-piece and to develop the maximum strength of each individual member with the minimum of added weight.

Welding is the most practical, least expensive and surest means of attaining permanent strength in metal fabrication. A welded article is a single unit when assembled, and always remains so. There are no mechanical joints to jolt, jar or work loose with the passage of time. Various members can be depended upon to develop their full, assigned reactions now or ten years from now. Welded construction, therefore, means more than adequate economy in design and construction. It means confidence in the permanence and adequacy of the product.

Welding allows the designer to specify any shape or combination of shapes without limitation. By welding, complex forms can be built up from simple units. Metal can be cut away or added. Projections, lugs, ears, rods, bars, any member—can be added to the foundation. Dissimilar metals can be joined. Long-wearing or corrosion-resistant alloys can be used to reinforce or build up at sections subject to special wear or abrasion.

In fact, welding relieves the designer of many limitations, of most of the old inhibitions and joint problems of old-fashioned design. It makes possible the fabrication of a better, more serviceable, longer-lived product at lower cost. The essential advantages of modern design are obtained by welding with convenience, economy and assurance.

## *Welding Savings*

The New Haven "Comet" uses cromansil steel engine beds and car trucks, all welded. Cromansil, a high-tensile mild-alloy steel containing chromium, manganese and silicon, was chosen as best for high-strength, rigid members. Welding was specified because it develops the full strength with minimum weight.

* * *

Stands for automatic vending machines are now stronger, better, more permanent. They used to be made by screwing lengths of $1\frac{1}{2}$-inch pipe into cast iron bases. They are now bronze-welded at less cost with obvious improvement in strength, durability and ease of fabrication.

* * *

Welding makes stainless steel beer barrels practical. Strong, light, smooth inside and out, these barrels have no crevices or corners in which fungi and bacteria can breed. Welding makes them all one-piece and prevents bacterial and mold action and chemical off-tastes. Further, because of welding, they outlast all others.

* * *

Welding produces gas-operated refrigerators at a reasonable production cost. After making exhaustive tests involving every method of fabrication possible, the manufacturer standardized on welding 100 per cent. Results include a better product, more flexibility in design and lower manufacturing costs.

* * *

Welding makes modern metal furniture production possible. Faced with tremendous competition, this new industry capitalized the advantages of welding in the production of light, strong, modern designs and has grown to a sound and healthy state. Welding in this case means mobility in design as well.

* * *

Every day welding is being used in the production of different articles. For instance, an order was recently received for 2000 window display fixtures. Welding was specified because welding permits any design, gives neat appearance and a strong sturdy assembly at low cost.

* * *

*Tomorrow's engineers will be expected to know how to take advantage of this modern metalworking process. Many valuable booklets describing the oxy-acetylene process are available without obligation. For further information write any Linde office.*

**The Linde Air Products Company**

*Unit of Union Carbide and Carbon Corporation*

UCC

New York and Principal Cities

In Canada:

Dominion Oxygen Company, Limited, Toronto

THE

# OHIO STATE ENGINEER

Vol. XX JUNE, 1937 No. 7


## IN THIS ISSUE




Members of the Engineering College Magazines Associated

National Chairman: PROF. RICHARD W. BECKMAN
Iowa State College, Ames, Iowa

Arkansas Engineer
Colorado Engineer
Cornell Engineer
Iowa Engineer
The Iowa Transit
Kansas Engineer
Kansas State Engineer
The Marquette Engineer
Michigan Technic
Minnesota Techno-Log
Nebraska Blue Print
New York University Quadrangle
North Dakota State Engineer
The Ohio State Engineer
Oregon State Technical Record
Pennsylvania Triangle
The Purdue Engineer
Rose Technic
Tech Engineering News
The Technograph
Villanova Engineer
Washington State Engineer
Wisconsin Engineer

RICHARD L. SLOANE, Editor ROBERT E. KELLER, Bus. Mgr.

Published in the months of November, December, February, March, April, May, and June by the students in the College of Engineering, The Ohio State University, Columbus, Ohio. Subscription price, 97 cents (tax 3 cents) per year for seven copies; Single copies 14 cents each. Make checks and money orders payable to THE OHIO STATE ENGINEER.

Entered as second-class matter May 15, 1912, at the post office at Columbus, Ohio, under the Act of March 3, 1879. Acceptance for mailing at special rate of postage provided for in Section 1103, Act of October 3, 1917. Authorized December 8, 1922.